BreezeMAX® USB 250

User Manual

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Document History

Topic	Description	Date Issued
BreezeMAX® USB 250 User manual	This is the document's first release.	July 2010
General	Added installation and screens of the Macintosh version of WCM.	Release 2 November 2010
Specifications	Operating Frequency for 3.5 GHz model is 3.400~3.600 GHz	Release 2 November 2010
Authentication	Authentication is pre-configured.	Release 2 November 2010
Main window	Removed the "Service" entry.	Release 2 November 2010

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Disposal of Electronic and Electrical Waste

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1. About BreezeMAX USB250

The BreezeMAX USB 250 device supports IEEE 802.16e-2005 state of the art Scalable OFDMA based Technology. BreezeMAX USB250 operates on 2.3, 2.5 and 3.5 GHz frequency licensed band. It provides users a seamless broadband wireless access, video streaming at home, office or on the move. To protect information transmitting through wireless network, standard security Sublayer PKMv2 EAP based user authorization/authentication and AES for data encryption are supported.

An easy-to-use Windows/Macintosh-based utility provides the graphic user interface for system/link status, configuration and firmware updates.

1.1 BreezeMAX USB250 Hardware

The BreezeMAX USB250 hardware consists of a USB modem, a USB connector adapter, and Quick Installation Guide.

The following figure shows the BreezeMAX USB250.

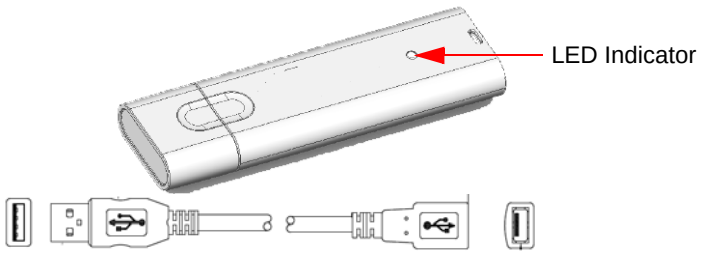

Figure 1: BreezeMAX USB250 Unit and Adapter

1.2 Specifications

1.2.1 Hardware Specifications

System	
CPU	BCSM250, Wave 2
Flash ROM	16MB
Network Interface	
USB	2.0
WiMAX Port	Two Printed Antennas

Standards	
Wireless	IEEE 802.16e-2005
I/O	
DC Power input port	DC +5.0V
LED indicator	WiMAX Link Status

1.2.2 Wireless Specifications

Model	2.3 GHz	2.5 GHz	3.5 GHz
Operating Frequencies	2.302 ~ 2.397 GHz	2.483 ~ 2.687 GHz	3.400~3.600 GHz
Channel Bandwidth	5/10 MHz	5/10 MHz	5/7/10MHz
Antenna Support Frequency	2302~2397 MHz	2483~2687 MHz	3400~3600 MHz
TX Output Power	+23 dBm (typical), 16QAM 3/4 with EVM -24dB		
Sensitivity (MRC)	Better than mRCT 6dB		
Antenna Gain	2 dBi		
Radio Type	Dual Receive, Direct Conversion Radio (CMOS), MIMO Rate 1 and Rate 2, Beam Forming		
Modulation	S-OFDMA, MIMO		
Modulation Technique	QPSK, 16QAM, 64QAM		
Network Architectures	WiMAX Forum NRM (Network Reference Model)		
Operating Channels	In Channel Step Size 250KHz		
Transmit Power Dynamic Range	45 dB		
Power Consumption	Below 2.5W		

1.2.3 Dimensions

Length x Width x Height (mm)	93.7mm x 28mm x 10.7mm
Weight	20g

1.2.4 Environmental Specifications

Operating Temperature	0° to +40°C
Storage Temperature	-20° to 60°C

Operating Humidity	max. 90%
Storage Humidity	max. 90%

1.2.5 Standards

Model	Standard	Details
2.3 GHz	CE	Health: EN 62311 (SAR)
		RF: EN 302 326
		EMC: EN 301 489-1 V1.4.1
		Safety: EN 60950-1, 2nd edition
		Notify Body review (0560)
2.5 GHz	CE	Health: EN 62311 (SAR)
		Safety: EN 60950-1, 2nd edition
		RF: ETSI 302544
		Reliability: ETSI 300 019-2-3
		EMC: ETSI 301 489-1 V1.4.1
		Notify Body review (0560)
3.5 GHz	CE	Health: EN 62311 (SAR)
		RF: EN 302 623
		EMC: EN 301 489-1 V1.4.1
		Safety: EN 60950-1, 2nd edition
		Notify Body Review (0560)

1.3 LED Indication

Color	Status	Description
Red	On	■ Power on ■ No Network Entry ■ Firmware download complete ■ Driver initialized
Yellow/green	Blinking	WiMAX connected

2. Installation

The following section will guide you through the hardware and software installation.

The software installs drivers on your laptop, which allow you to use the BreezeMAX USB250 just like a regular modem.

2.1 Prerequisites

Before installation, make sure you have a computer with the following:

- A minimum of 64MB available hard disk space
- An available USB 2.0 slot
- Operating System - Windows XP, Windows 7 or Windows Vista, or Apple Macintosh.

IMPORTANT

Windows Vista and Windows 7 users must install under Administrator mode for installation to be complete.

2.2 Installation Procedure - Windows

To install BreezeMAX USB:

1 Remove the plastic cap and slide the BreezeMAX USB250 into the USB port. The LED indicator turns on if the device is properly inserted.

NOTE

Ignore the “Found new hardware” message.

2 A new removable storage “WiMAXCM” is displayed in the Explorer (see Figure 2). If auto-run is enabled in your PC, the installer is executed automatically. Otherwise, execute the installer manually.

Figure 2: Removable Storage "WiMAXCM" (Windows)

3 The WiMAX Connection Manager Setup Wizard is displayed; Click **Next** to continue.

WiMAX Connection Manager Setup
alvarion
Your Open WiMAX Choice
Welcome to the WiMAX Connection Manager Setup Wizard
This wizard will guide you through the installation of WiMAX Connection Manager.
It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.
Click Next to continue.
Next >
Cancel

Figure 3: WiMAX Connection Manager Setup Wizard Window

NOTE

To review or make changes at this time, click **Back**. To cancel the installation process, click **Cancel**.

4 Select the installation path: Click **Browse** to select a different path from the default or click **Install** to start the installation in the current path.

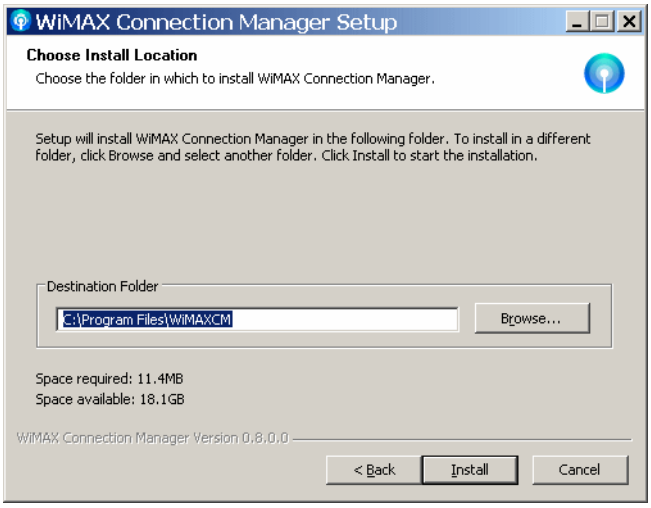
WiMAX Connection Manager Setup
Choose Install Location
Choose the folder in which to install WiMAX Connection Manager.
Setup will install WiMAX Connection Manager in the following folder. To install in a different folder, click Browse and select another folder. Click Install to start the installation.
Destination Folder
C:\Program Files\WiMAXCM
Browse...
Space required: 11.4MB
Space available: 18.1GB
WiMAX Connection Manager Version 0.8.0.0
< Back
Install
Cancel

Figure 4: Choose Installation Location Window

5 The installation process starts, displaying the status of installed components. The utility and drivers are automatically installed and may take several minutes. Wait for the installation completion.

IMPORTANT

Windows Vista and Windows 7 users, a security screen may prompt you to identify the WCM program. To continue installation, click **Allow**.

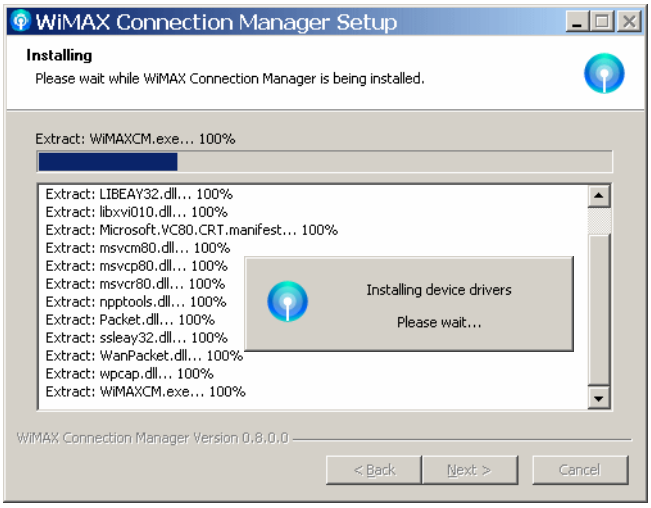

Figure 5: Installation Process

6 When the installation is complete, click **Next**.

Figure 6: Installation Complete

7 The installation is complete. Click **Finish** to complete the installation and close the wizard.

After installing the WCM, an icon is displayed in your System Tray and the Connection Manager main window opens automatically.

Figure 7: WiMAX Connection Manager

8 If necessary, proceed either with "Settings the WiMAX Connection Manager (WCM)" on page 15 or "Viewing Status Details" on page 19.

2.3 Installation Procedure - Macintosh

This section provides the software installation of USB250 for Macintosh OS X 10.5 and above. Also, this section describes how to create a network service related to the new WiMAX network interface in Macintosh OS X.

To install BreezeMAX USB WiMAX Connection Manager (WiMAXCM):

1 Remove the plastic cap and slide the BreezeMAX USB250 into the USB port. The LED indicator turns on and a new drive WiMAXCM is added to the Devices list.

2 A new removable storage "WiMAXCM" is displayed (see Figure 8).

Figure 8: Removable Storage "WiMAXCM" (Macintosh)

3 Browse to the "Mac" folder and double-click the **.mpkg* file to install the WiMAX Connection Manager (see Figure 9). The WiMAX Connection Manager Setup Wizard is displayed, showing the Introduction section (see Figure 10).

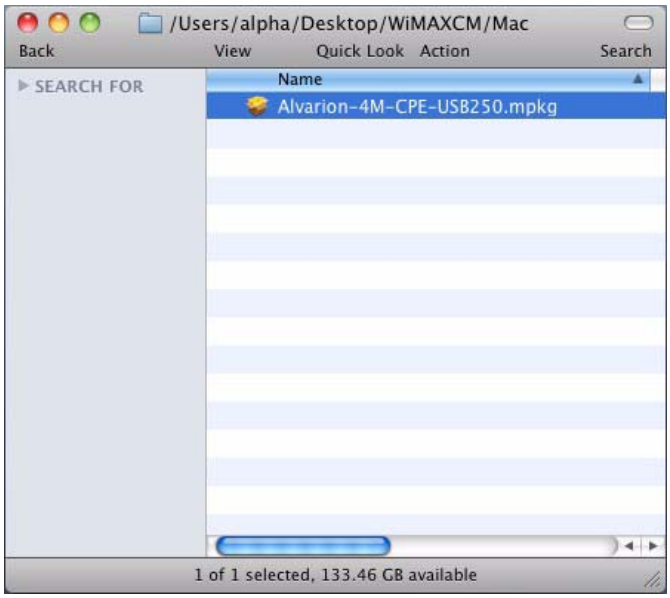

Figure 9: Double-click the *mpkg* File

Figure 10: Install WiMAX Connection Manager - Introduction

4 In the WiMAX Connection Manager Setup Wizard click **Continue** (Figure 10). The "Destination Selection" page is displayed (Figure 11).

Figure 11: Destination Selection

5 Select the disk to which to install the WiMAX Connection Manager (WCM) software and click **Continue**. The Installation Type window is displayed (Figure 12).

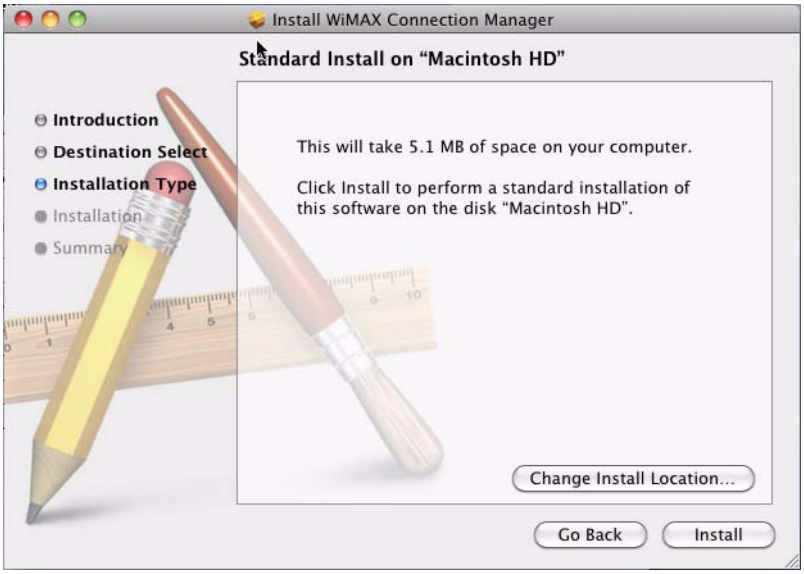

Figure 12: Installation Type

NOTE

To review or make changes at this time, click **Go Back**. To change the installation path, click **Change Install Location** and select a different path from the default.

6 Click **Install**. A window is displayed, requiring the permitted user credentials on this PC to install the application (usually administrator). Enter the name and password and click **OK**.

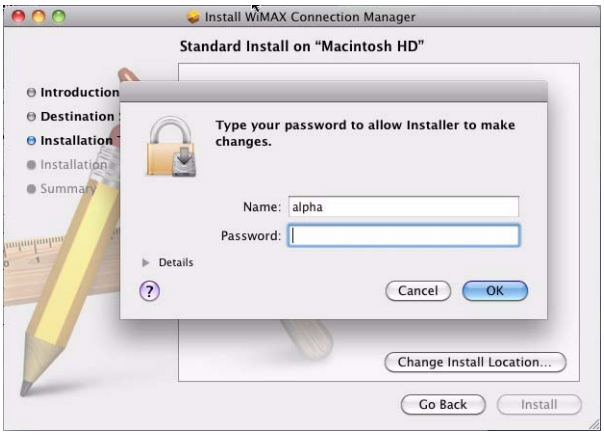

Figure 13: Changing the Installation Location Window

The following message is displayed, requiring the user to restart the system after installation:

Install WiMAX Connection Manager
When this software finishes installing, you must restart your computer. Are you sure you want to install the software now?
Cancel
Continue Installation

Figure 14: Continue Installation

7 Click **Continue Installation** (to cancel the installation process, click **Cancel**). The installation process starts.

8 When the installation is complete, click **Restart**.

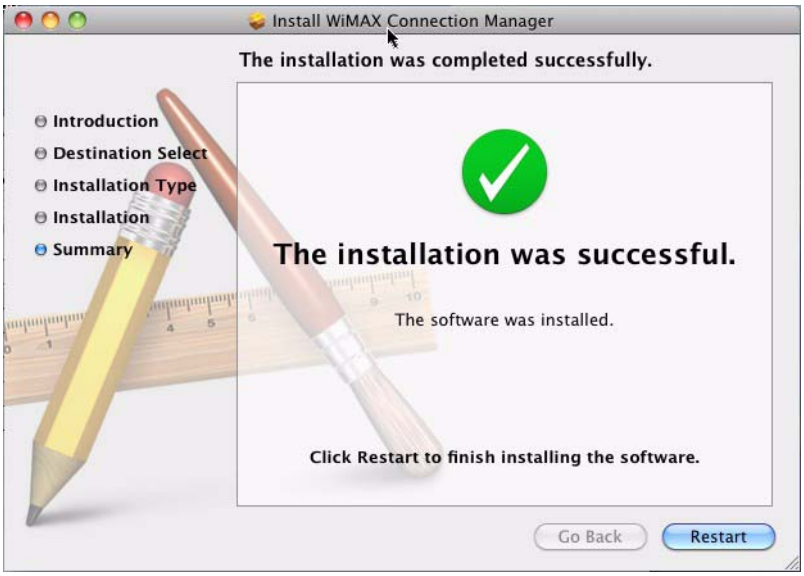

Figure 15: Installation Completion

To create a network service related to the new WiMAX network interface:

If this is the first time you use the device in your laptop, the following window is displayed to prompt for adding a new network service.

A new network interface has been detected.
The "WIXUBB-110X187" network interface has not been set up. To set up this interface, use Network Preferences.
Cancel
Network Preferences...

Figure 16: A New Network Interface has been Detected

1 Click **Network Preferences**. The Network window is displayed with the following message (see Figure 17). The Interface and Service Name fields are automatically filled in by the system.

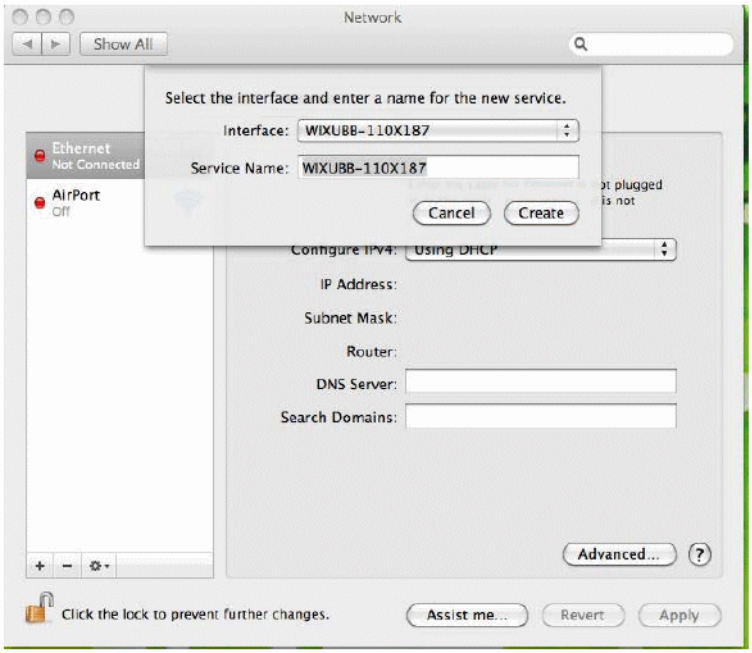

Figure 17: Network Window and Message

2 Click **Create** to continue. The Network window displays the Location: Automatic.

Figure 18: Network - Automatic Location

3 Click **Apply** to complete the configuration.

4 After restart, the WCM application main window is displayed.

3. Uninstalling the Software

The following section will guide you through the BreezeMAX USB250 software uninstallation procedure.

3.1 Prerequisites

Before proceeding, ensure that your WiMAX Connection Manager is closed and the BreezeMAX USB250 is not plugged in to facilitate an easy uninstallation procedure.

IMPORTANT

A reboot will be required after uninstalling the WiMAX Connection Manager.

3.2 Uninstallation Procedure- Windows

To uninstall BreezeMAX USB:

1 Navigate to Start > Programs > WCM and click **Uninstall**.

2 You are prompted to verify the process. Click **Yes** to proceed.

3 The Windows Installer removes the WCM software from your system.

3.3 Uninstallation Procedure - Macintosh

To uninstall BreezeMAX USB:

1 Drag and drop the WiMAXCM icon from the Application window into the "Trash" icon.

Figure 19: Macintosh Application Window

2 Restart your PC and empty the "Trash". The following message appears:

Figure 20: Emptying the "Trash" After Restarting the PC

3 Click **Empty Trash** to complete the uninstallation procedure.

You cannot empty the "Trash" without restarting your PC. If you try to do so, the following message appears:

Figure 21: Trying to Empty the "Trash" without Restarting the PC

4. Using the BreezeMAX USB250

Your BreezeMAX USB250 comes with an easy-to-use graphic user interface. The following chapter provides information for login and connecting to your WiMAX account.

IMPORTANT

Menu screens are subject to change and may differ from the actual working sample.

4.1 Prerequisites

Before you can connect to your network, make sure you have the following:

- WiMAX account information as supplied by your service provider.
- Required software installed from the unit (as described above).
- BreezeMAX USB250 inserted (with or without the USB cable adapter).

4.2 Settings the WiMAX Connection Manager (WCM)

This chapter describes the general settings available for the users.

To configure general settings:

1 In the main WCM window click **Settings**. The Settings page is displayed, containing the Basic tab (Figure 22).

NOTE

The Basic tab may contain Language selection, depending on your configuration.

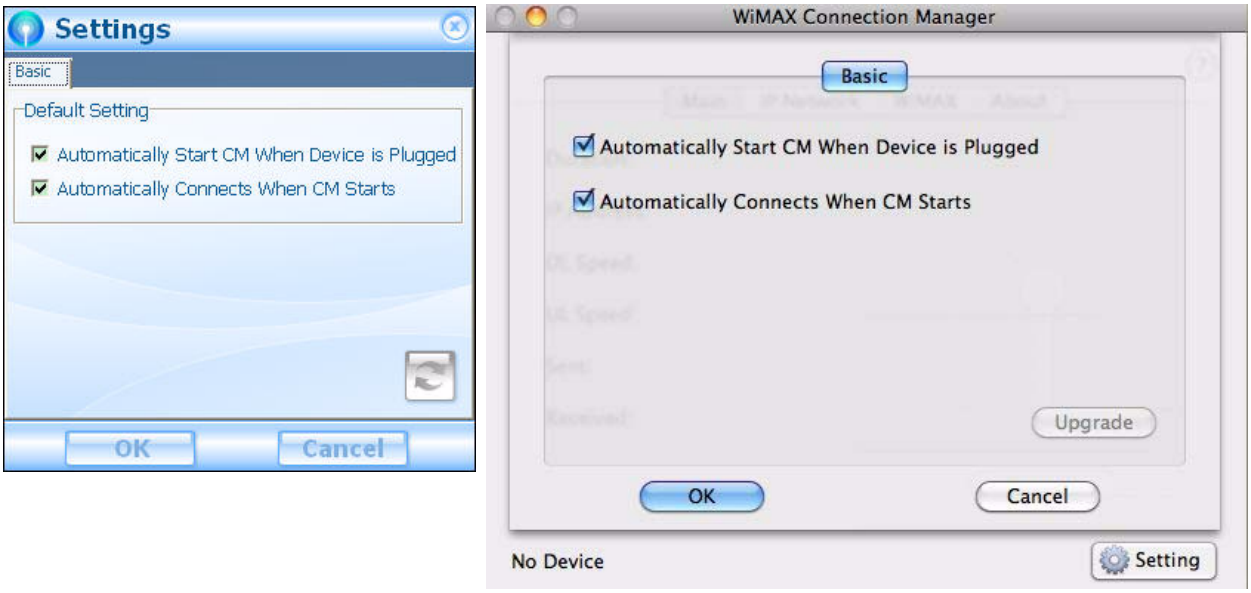

Figure 22: Setting Page: Basic Tab (Windows and Macintosh)

2 In the **Basic** tab select or deselect the following and click **OK**:

- Automatically Start CM when Device is Plugged: If it is enabled, WiMAX Connection Manager starts automatically when the USB250 is plugged into the PC. (Default: Enabled)
- Automatically Connects When CM Starts: If it is enabled, WiMAX Connection Manager tries to connect to WiMAX network automatically when it starts. (Default: Enabled)
- Language (if enabled for display): select the language (default: English).

3 To initiate SW Upgrade procedure, click the Upgrade button (in Windows -). Refer to "Software Upgrade" on page 22.

4.3 Connecting to the WiMAX Network

This section describes how to connect to WiMAX network with proper configurations.

To connect to WiMAX network:

1 Navigate to Start > Programs > WiMAX Connection Manager

If “Automatically Connects When CM Starts” is enabled, a blue button with dynamic background is displayed and CM will try to connect any available WiMAX base station (BS).

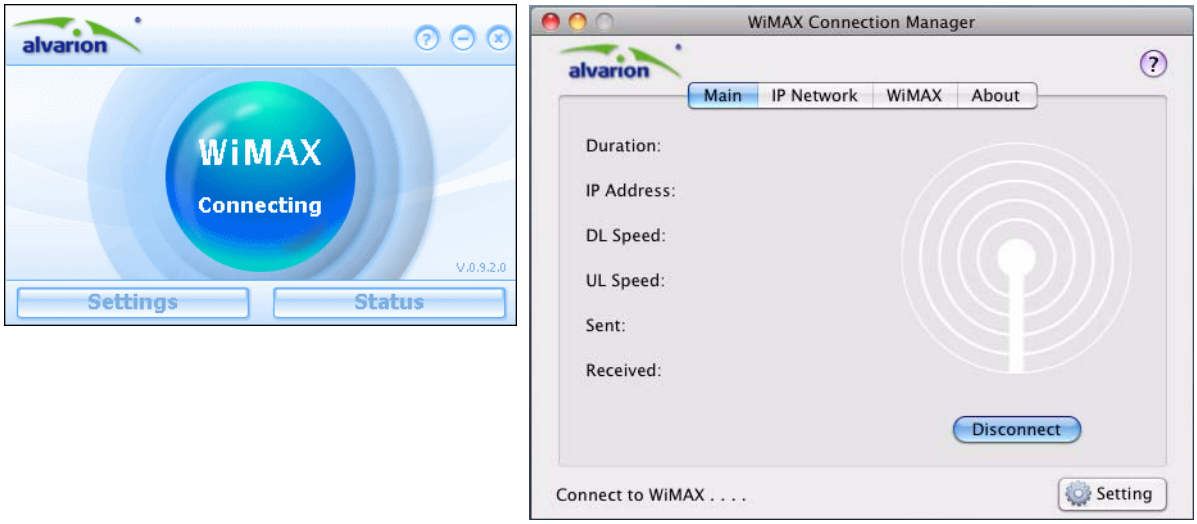

Figure 23: CM Main Window: WiMAX Connecting (Windows and Macintosh)

In Windows - If “Automatically Connects When CM Starts” is disabled, click the orange button to start the connection.

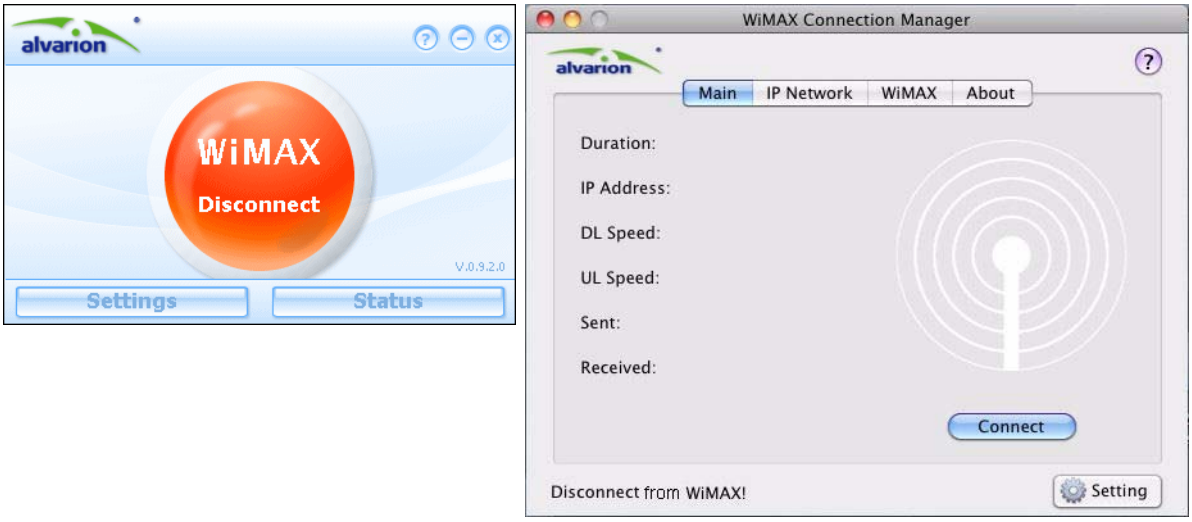

Figure 24: CM Main Window: WiMAX Disconnected (Windows and Macintosh)

4.4 Operation Verification

When connected to the WiMAX network, a small circle with several concentric circles are displayed (see Figure 25). The concentric circles (in Windows colored orange) represent WiMAX signal strength.

IMPORTANT

In the event that signal strength is low, tilting the USB device while attached to the USB Connector adapter may improve signal strength and quality. Adjusting the USB device position may also improve signal quality.

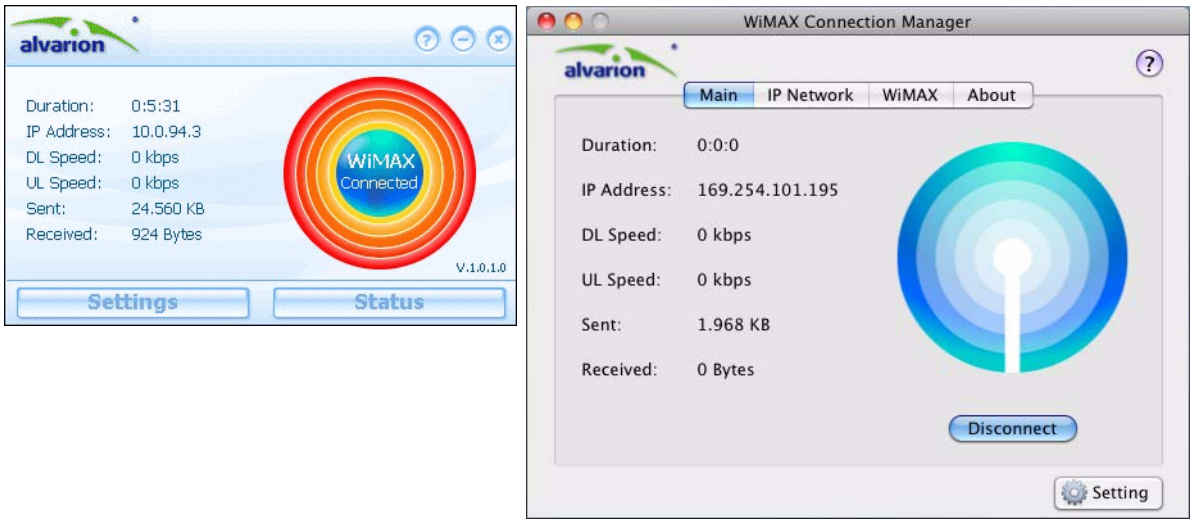

Figure 25: CM Main Window: WiMAX Connected (Windows and Macintosh)

Some basic information is also shown in this window (Figure 25), as described in the following table:

Table 1: Information in the CM Main Window

Item	Description
Duration	Time (HH MM SEC) during which there is connection to WiMAX
IP Address	Address of the WiMAX server
DL Speed	Downlink speed in kbps
UL Speed	Uplink speed in kbps
Sent	Data sent in KB/MB/GB
Received	Data received in KB/MB/GB

- To verify proper operation of the unit, examine the LED indicator.
- To verify data connectivity, from the end-user's PC or from a portable PC connected to the unit, connect to a known internet site (e.g www.Alvarion.com).
- To disconnect from the network, click the blue circle.

An Error message is displayed when the CPE does not find a base station.

4.5 Viewing Status Details

In addition to the basic information that appears in the main window, you can view detailed information on the various device parameters.

To view status details:

1. In Windows only - In the main window click **Status**. The Status page is displayed, showing the IP Network tab.
2. To view various parameters, select the appropriate tab:

- The IP Network tab includes:
  - Physical Address
  - IP Address - WAN IP address. For DHCP mode - IP address acquired on the WAN interface is displayed. Otherwise it is 0.0.0.0
  - Subnet Mask
  - Default Gateway - Gateway IP address
  - DNS Servers - Domain Name System servers IP address(es)

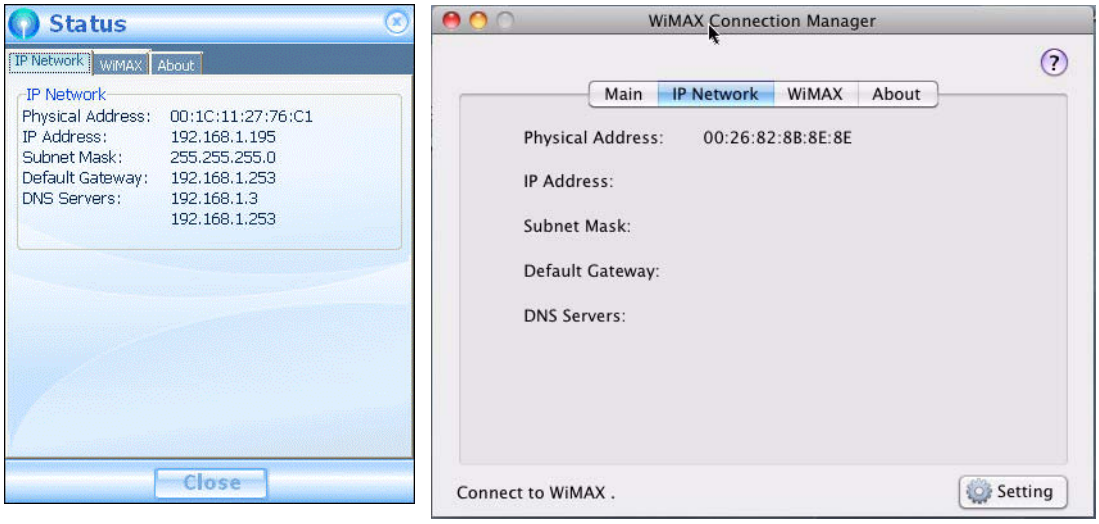

Figure 26: Status - IP Network Tab (Windows and Macintosh)

- The WiMAX tab includes:
  - State - The status of the device, including “Init”, “Ready”, “Scan”, “Network Entry”, “Operational”, and “Idle”.
  - Session Duration - Time of device function (hours:minutes:seconds)
  - Temperature - Unit’s current temperature
  - Base Station ID - Base Station ID number (e.g. 00:01:21:00:03:5A)
  - Center Frequency - The middle frequency of the bandwidth of a channel.
  - Bandwidth
  - RSSI - Currently received signal strength indication
  - CINR - Carrier to Interference-plus-Noise Ratio [in decibels (dB))
  - TX Power - Transmission power
  - Downlink Rate - Rate (Kbytes per second) of downlink transmitted bytes
  - Uplink Rate - Rate (Kbytes per second) of uplink transmitted bytes
  - Byte Sent - Total number of transmitted bytes
  - Byte Received - Total number of received bytes

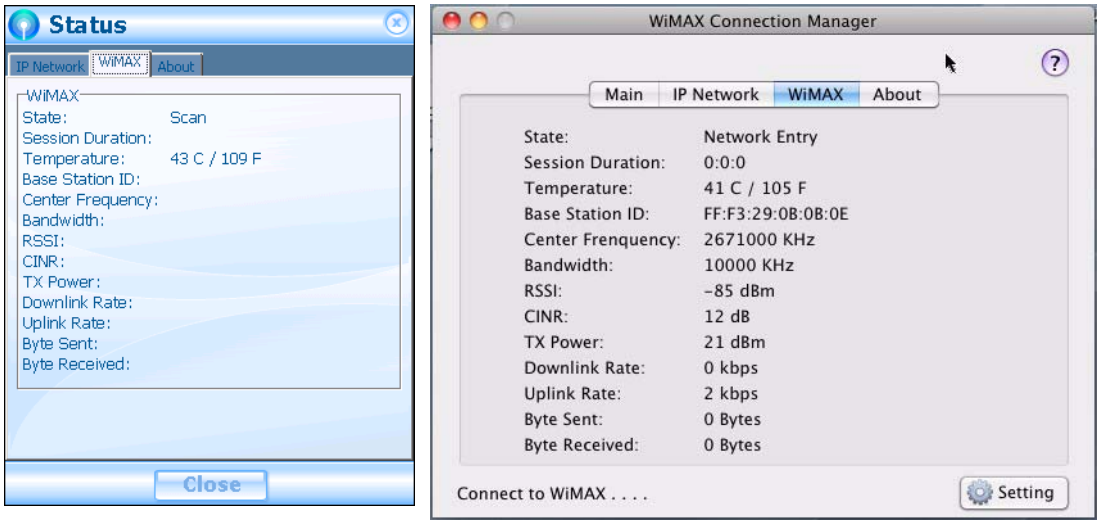

Figure 27: Status - WiMAX Tab (Windows and Macintosh)

- The About tab includes
  - Product Name
  - Product Version
  - Driver Version
  - Firmware Version
  - Copyright
  - URL

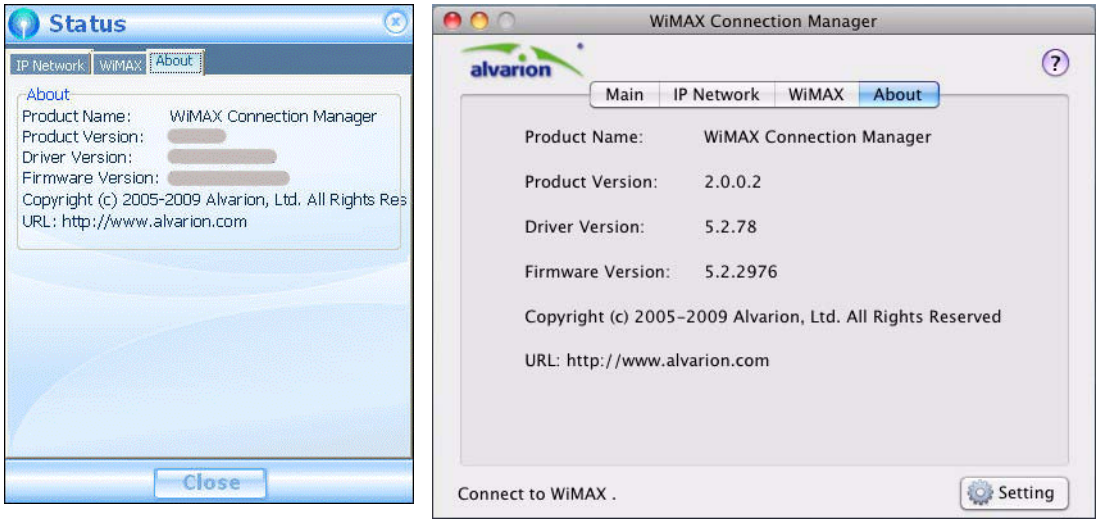

Figure 28: Status - About Tab (Windows and Macintosh)

4.6 Software Upgrade

This section describes how to update your WiMAX Connection Manager.

NOTE

Software upgrade availability depends on your service provider.

To upgrade the software found in your BreezeMAX USB 250 device:

1 When a new version is available, the following message is displayed, allowing you to choose if to install the new update or not.

Figure 29: WiMAXCM Update

2 To update immediately, click **OK**; the management application closes and the installation starts automatically. Click **Next** to confirm each step of the installation. When the new software is installed, the management application restarts.

To continue running the existing version of the application click Cancel. The new firmware image remains in *C:\Program Files\WiMAXCM\oma\temp* folder, but it will not be installed automatically the next time the WCM is restarted.
To install the update after choosing Cancel, manually run the installer from the location mentioned above.

5. Maintenance and Troubleshooting

The following section provides information for hardware and software related questions or troubleshooting issues.

Q Are there any special requirements for notebook computers?

A Yes, there are two special requirements for notebook computers:

- An available USB 2.0 slot is required.
- Power supply support of 5V±5% is required.

Q What's the correct way to install the client software?

A The operating system detects the new hardware and guides you to install the new driver step by step.

Q Can I take out the USB device without removing it through the operating system?

A Although the USB device supports hot swap, please remove it by undocking it through your operating system first.

Q What operating system does the client utility support?

A The client utility currently supports Windows XP, Windows 7 and Windows Vista.

Q My device failed to connect after I inserted my USB device. What can I do at this time?

A Take out the USB adapter at this time and reinsert it in the USB slot. When your device is detected the main screen appears.

Q I have followed the procedures in the user manual, why can't I access the Internet?

A Please make sure the USB adapter has been activated successfully. In addition, contact your operator for detailed settings.

Q I click connect but I cannot log in to my account?

A Please verify your account UserID and Password and ensure they are correct. Enter the account information and try again.

Q My account information is correct, but I'm still not able to log in.

A Signal reception might be a factor. Situate your computer in a location with good air link quality, and attempt to connect again.

6. Glossary

This section details terms used in this manual.

Authentication	The process to verify the identity of a client requesting network access. IEEE 802.11 specifies two forms of authentication: open system and shared key.
BS	Base Station
Channel Allocation Priority Level (CAPL)	CAPL scan list is defined by the customer provisioned list. There are some parameters with CAPL scan: NAPID, priority and RefID. NAPID is used to filter some BS if the NAPID is not matched. Priority is the customer defined priority scan order. Higher priority will be scanned first. RefID is a result of mapping from IDs into a scan list from the channel plan.
Extensible Authentication Protocol (EAP)	An authentication protocol used to authenticate network clients. EAP is combined with IEEE 802.1X port authentication and a RADIUS authentication server to provide “mutual authentication” between a client, the access point, and the a RADIUS server.
EAP-Transport Layer Security (EAP-TLS)	A cryptographic protocol that provides secure communications on the Internet for web browsing, e-mail, Internet faxing, instant messaging and other data transfers.
EAP-Tunneled Transport Layer Security (EAP-TTLS)	An EAP protocol that extends TLS.
Handover	The WiMAX Handover mechanism was defined to maintain uninterrupted user communication session during their movement from one location to another.
IEEE 802.16e	A standard that provides mobile broadband wireless access using Scalable Orthogonal Frequency Division Multiple Access (SOFDMA).
MSCHAPV2 (MS-CHAP. v2)	Microsoft version of the Challenge-handshake authentication protocol, version 2. MS-CHAPv2 provides mutual authentication between peers by adding a peer challenge upon the Response packet and an authenticator response on the Success packet.

mRCT	Mobile Radio Conformance Test
Network Access Point (NAP)	Network exchange point equipped with large-scale switching facilities and serving as a connection point between individual Internet Service Providers
Open Mobile Alliance (OMA)	OMA DM (device Management) is a protocol specified by Open Mobile Alliance (OMA) for Device Management purposes, by the Device Management Working Group and the Data Synchronization (DS) Working Group. The communication protocol is a request-response protocol.